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Sorghum

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SORGHUM.

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Work aiming at improvement of the sorghum plant by seed selection based upon analysis of individual canes, begun in 1888 and continued in 1889 with the results reported in Bulletins 5 and 8, was again continued last year, (1890).

In accordance with the plan of work, seed from only such stalks of 1889 as were among the highest in sugar content was planted. Soil and culture were nearly the same as in previous years: both supposed to be good.

The season of 1890, notoriously an unfavorable one for corn, was likewise in this locality a most trying one for sorghum. The early and long continued drought resulted in a very small crop of dwarfed, spindling canes, containing but little juice. The yield of cane per acre was not determined, but was certainly not more than one-half to two-thirds of a good crop, and on the higher land fell decidedly short of that. Therefore no *improvement* can be reported in the cane of 1890 over that of 1889, but decidedly the reverse as regards quantities of cane and juice produced on a given area. In *quality*, also, there was a decided falling off, especially in respect to "purity" of juice; in percentage of sugar in the juice there was on the average but a trifling decline, and in quite a number of cases an appreciable advance—these latter occurring chiefly in canes growing on the higher ground, where they would naturally have more concentrated juice.

The high percentage of solids in the juice, and the reduced purity resulting therefrom, are the most striking features of the analytical results.

Analytical Results.

Early Amber cane, grown from selected seed of 1889. Number of individual stalks analyzed, 179. The 10 showing highest percentages of sucrose (cane sugar) in the juice, gave the following results:

On Single Cleaned Canes.

No.	ON THE JUICE.		
	Solids, Brix.	Sucrose, single polarization.	Purity coefficient.
	Per cent.	Per cent.	
1	19.90	15.17	76.34
2	20.10	15.18	75.31
3	21.14	15.02	71.05
4	20.03	14.96	74.69
5	20.40	14.79	72.50
6	20.40	14.79	72.50
7	19.97	14.77	73.96
8	20.80	14.76	70.90
9	19.70	14.72	74.72
10	20.23	14.69	72.62
Av'ge	20.26	14.88	73.46

	Solids.	Sucrose.	Purity.
Average of the 10 next highest was.....	20.01	14.50	72.47
Average of the 10 lowest was.....	17.15	10.91	63.66
Of the 10 next lowest.....	17.72	11.53	65.05
And of the entire 179 canes.....	18.77	13.05	69.52

Results of 1889 and 1890 Compared.

The following table places in comparison:

1. The average of 20 stalks showing highest sucrose, each year.
2. The average of 20 stalks showing lowest sucrose, each year.
3. The average of all stalks analyzed each year.

Average of	On the juice.		
	Solids, Brix.	Sucrose, single polarization.	Purity coefficient.
	per cent.	per cent.	
(1)			
20 Highest—			
1889.....	18.66	14.26	76.45
1890.....	20.14	14.69	72.97
(2)			
20 Lowest—			
1889.....	16.80	11.47	68.24
1890.....	17.43	11.22	64.36
(3)			
All—			
140 in 1889..	17,80	13.18	74.04
179 in 1890..	18.77	13.05	69.52

Seed from the best stalks have been preserved for planting, and the work will be continued the present year.

SORGHUM SEED.

Director Speer saved from the plots of selected cane a large quantity of seed for distribution to those who may apply. The number of applicants will be so large (judging from last year) that we can promise only a small quantity to each.

EARLY AMBER FROM MINNESOTA.

Last autumn Director Speer received from Mr. Seth Kenny, of Morristown, Minn., a small package of seed said to be of a very superior variety of Early Amber. Earliness of maturity was especially claimed for it, together with a high yield of sugar and syrup. The seed was sown last spring, and the plot carefully tended. It was on lower ground than the station's selected cane, and did not suffer as much from the drought. It matured about a week earlier than the station cane planted at the same time, but its sugar content was lower, also the purity of juice. Sixty stalks were tested after it appeared ripe, with results giving the following average:

AVERAGE OF SIXTY STALKS MINNESOTA EARLY AMBER.

ON THE JUICE.		
Solids, Brix.	Sucrose, single polarization.	Purity coefficient.
per cent.	per cent.	
17.31	10.64	61.47

The quality of this variety, as grown last year on the station grounds, is here shown to be rather poor; but its early maturity is a strong point in its favor, for this and more northerly latitudes. It will be tried again the coming season.

NOTICE.

RELATIVE VALUE TABLE,

FOR USE OF CREAMERIES, PATRONS AND OTHERS.

The Station has published a *Relative Value Table*, for use in valuing milk according to its percentage of butter-fat,—this latter being learned by any of the now numerous modes of testing. The table is merely a "ready reckoner." Its plan is the same as that of the table in Bulletin No. 9, but it differs from the latter in grading values by steps of two cents instead of five cents, per 100 pounds.

The Station will send a copy of this table to any resident of Iowa upon application. Address

EXPERIMENT STATION,
Ames, Iowa.